ABSTRACT

A conduction welding apparatus and method for bonding abutted thermal plastic tubular end portions is particularly suitable for welding PFA. In a preferred embodiment, a folding weld head embraces the abutted the tubular end portions to be welded, each tubular end portion including a flange spaced from the surfaces to be joined. The weld head includes means for securing the flanges within the weld head and further include bias means. The bias means provide an inward axial bias on the adjoined tubular end portions when the tubular end portions are displaced axially outward from the weld head due to the expansion of the plastic during the weld process. The bias means in a preferred embodiment is substantially inoperative prior to the weld and provides bias, or a substantial increase in bias, when the flanges are displaced due to the expansion of the molten PFA during the weld process. In a preferred embodiment, the securing means comprises a pair of clamps which each attach to and encompass the respective tubular end portions at the end portion flanges. The tubing clamps fit into recesses in the weld head. In such a preferred embodiment the bias means is provided by a spring loaded plate which is deflectable in an axial direction outward from the weld head. The invention also includes a process for accomplishing a weld with the described apparatus.